

Claim

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10. (original) An earth station for Inmarsat-B service, comprising:

1 a standard Inmarsat-B mobile earth station control unit (MCU) having a first satellite modem, a microcontroller executing a mobile earth station (MES) management program, a first EIA-232 port in communication with the MES management program, a diplexed L-band transmit/receive interface, and a software application programming interface (API) in the management program accessible through the EIA-232 interface, which API enables external control of a high power amplifier in an RF terminal by use of the API;

2 a standard Inmarsat-B RF terminal with L-band transmit/receive interface and a high power amplifier (HPA) that the MCU can control using management and control (M&C) messages multiplexed over an RF path connecting the MCU with the RF terminal;

a second satellite modem capable of providing higher data rate operation than the first satellite modem and equipped with L-band transmit and receive interfaces, a keypad and display, a microcontroller running a modem management program that controls the operation of the second satellite modem, keypad, and display, a baseband I/O port, a remote control EIA-232 port in communication with the modem management program; and

a switching assembly associated with the second satellite modem and that contains a plurality of EIA-232 ports provided by a UART in communication with a switching management program running on a computer embedded in the switching assembly, an entry switch and an exit switch controlled by the embedded computer, a first M&C path between a first port on the UART and the EIA-232 port on the MCU, a second M&C path between a second port on the UART and the remote control EIA-232 port on the second satellite modem, two L-band diplexers, an entry connector connected to the diplexed L-band transmit/receive interface of the first satellite modem, an exit connector connected to the L-band transmit/receive interface of the RF terminal, NVRAM associated with the embedded computer as a data storage device, which switching management program interoperates with the MES management program through data exchange over the first M&C path and with the modem management program through data exchange on the second M&C path, provides a local user interface through the keypad and display on the second satellite modem, and based on data received and stored in NVRAM the switching management program controls the entry and exit switches to switch between:

a first path ("Bypass Path") on the switching assembly from the entry connector through entry and exit switches to the exit connector that passes signals from DC power to L-band with negligible attenuation, and

a second RF path ("ICE path") on the switching assembly from the entry connector through the entry switch that connects with a first diplexer that terminates an entering transmitter L-band signal in a dummy load, and substitutes for the entering transmitter L-band signal the L-band transmitter output of the second satellite modem by connecting the L-band transmitter output of the second satellite modem with the transmit port of the second diplexer, which diplexes the second satellite modem transmit output into an RF path that passes through the exit switch to the exit connector, wherein the receive L-band path from the exit connector passes through the exit switch to the diplexed port of the second diplexer, out of the receive port of the second diplexer to the receive port of the first diplexer, out of the diplexed port of the first diplexer through the

entry switch to the entry connector, and wherein the receive path is amplified and filtered so that it is virtually lossless compared with the receive signal strength at the entry connector when the first path is selected by the embedded computer, and wherein a directional coupler inserted in the RF path between the entry connector and the entry switch to provide a branch receive path that is filtered, amplified, and connected to the receive interface of the second satellite modem, and wherein DC power and an M&C frequency band pass through a first low pass filter connected to the entry connectors and a second low pass filter connected to the exit connector, thereby providing a DC power path and M&C path through the switching assembly when the second RF path is selected by the switching management program;

wherein the switching management program through communications with the modem management program and based on a configuration stored in NVRAM configures the second satellite modem to transmit and receive at data rates higher and lower than the data rate supported by the first satellite modem, controls the HPA power level through communications with the MES management program to set the HPA at the power level required by the configured data rate, and sets the entry and exit switches to insert the ICE Path so that the second satellite modem transmits and receives over the RF terminal.

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